

### REMARKS

Reconsideration of the above-identified application is respectfully requested.

Claims 1-36 are pending in the present application.

In the Office Action of October 19, 2005, the Examiner rejected Claims 1, 6-8, 12 and 25 and 30 under 35 U.S.C. §102(b), as allegedly being anticipated by Burrows (U.S. Patent No. 5,710,3724)(hereinafter "Burrows"). Further, the Examiner rejected Claims 2, 3-5, 9-11, 13, 15-19 and 21-22, 24, 26-29, 31-33 and 35-36 under 35 U.S.C. §103(a), as allegedly being unpatentable over Burrows in view of Blandy (U.S. Patent No. 6,249,912)(hereinafter "Blandy"). The Examiner additionally rejected Claims 14 and 23 under 35 U.S.C. §103(a), as allegedly being unpatentable over Burrows in view of the reference to Alpern et al. entitled "The Jalapeno Virtual Machine", IBM Systems Journal, Vol. 39, No. 1, February 2000 (hereinafter "Alpern"). The Examiner additionally rejected Claims 20 and 34 under 35 U.S.C. §103(a), as allegedly being unpatentable over Burrows in view of Blandy and further in view of Holzle et al. (U.S. Patent No. 5,995,754) (hereinafter "Holzle").

With respect to the substantive rejections of independent Claims 1, 15 and 25 under 35 U.S.C. §102(b), the Applicants' respectfully disagree. Burrows addresses a problem of monitoring the performance of computer programs by implementing two versions of the executing program. The first version remains unmodified (no instrumentation whatsoever is inserted) and, a second version that has instrumentation inserted in such a way that the program size (and all relative offsets) are identical to the first version. An external mechanism (page table mapper) is used to transfer execution from the uninstrumented program to the identical place in the instrumented program.

Respectfully, Burrows is not anticipatory in that: Burrows clearly does not use yieldpoints but rather uses code inserted into a second version of the original program (instrumented version the program) to determine when, and at what program points, a sample operation is taken. In the Burrows technique, the uninstrumented copy of the program contains no instrumentation and thus cannot be used for system profiling; the instrumented copy contains instrumentation, but it is unconditional instrumentation, i.e., it is executed every time when the instrumented program is executing; and, there is no compiler-inserted code that determines when a sample should be taken. That is, the second instrumented version of the program in Burrows is always profiling and consequently, incurs much higher processing overhead as compared to the present invention where sampling (profiling) operations performed at yield points occur at a subset of the executions of yield points. Further to this, Burrows requires Operating System (O/S) support in the form of a page table mapper described in Burrows at col. 4, line 35 – col. 5, line 20 (in support of Figures 3 and 4 therein), which enables switching between uninstrumented and instrumented versions of the program that is being monitored, i.e., the swap page table is implemented to swap in instrumented version of the code. The present invention does not necessarily require the O/S kernel support at all thus, further conserving processing resources while profiling.

As Burrows does not teach the unconditional execution of yield points and conditional actions performed at executed yield point instances, as set forth in each of Claims 1, 15 and 25, it is respectfully submitted that Burrows does not anticipate the amended Claims 1, 15 and 25. In fact, Burrows appears to teach away from the process of using yield points as claimed in the present invention, e.g., as such an approach is dismissed by Burrows as requiring the “continuous execution of the larger and slower instrumented version of the

program, even while performance data gathering is disabled” (See Burrows at col. 1, lines 51-54). In view of the foregoing, the Examiner is respectfully requested to withdraw the rejection of independent Claims 1, 15 and 25.

Note that Claims 1, 12 and 25 have been amended to set forth that sampling operations performed at yield points occur at a subset of the executions of those yield points, which, as described herein, is not taught by Burrows.

With respect to the rejection of independent Claim 15 as allegedly being unpatentable over Burrows in view of Blandy, applicants respectfully submit that Blandy does not make up the deficiencies of Burrows with respect to processing of yield points. Blandy describes a technique for modifying profile data to give more weight to recently executed methods, and Blandy’s technique does not perform sampling of any kind. Respectfully, the combination of the approaches taken in Burrow and Blandy does render the present invention obvious to those skilled in the art. Neither patent addresses the idea of inserting yieldpoints which trigger samples whereby the sampling operations performed at yield points occur at a subset of the executions of yield points. As such, the Examiner is respectfully requested to withdraw the rejection of Claim 15 based on the combination of Burrows and Blandy.

It is respectfully submitted that all remaining claims 2-14, 16-24 and 26-36 are dependent upon independent claims whose patentability has been demonstrated by the amendments to respective independent Claims 1, 15 and 25 from which they depend and the remarks presented herein.

Applicants specifically note that, with respect to rejected Claims 20 and 34, Holzle’s system is additionally not using sampling. Their system exhaustively increments a counter, and this counter is the only state that is maintained to describe the execution environment. Contrarily, present Claims 20 and 34 describe decrementing and checking a

counter as a sampling mechanism to determine when it is time to observe the state of the environment, which is different from Holzle's technique. A further difference is that Holzle specifies that one counter is used per method (or procedure) in the program, whereas the technique of the present invention does not have this restriction, and can use a single counter for the entire program.

In view of the foregoing, the Examiner is respectfully requested to withdraw the rejection of Claims 20 and 34 under 35 U.S.C. §103(a).

With respect to the rejection of Claims 14 and 23, it is respectfully submitted that the reliance upon Alpern is misplaced in that this paper describes using yield points as a method for performing thread scheduling in a virtual machine. It does not describe using the yield points to profile the application as described in the present invention. Notwithstanding this, applicants fail to see how the combination of Burrows with Alpern would motivate a skilled artisan to take profile data samples given that Burrows in the first instance, does not anticipate use of yield points in the manner as claimed in the present invention (base independent Claims 1 and 15) and Alpern is directed to methods for performing thread scheduling in a virtual machine. Respectfully, Alpern does not teach or describe using "yieldpoints" for the purposes of profiling an application as in the present invention. Furthermore, the co-inventors of the present invention, S.J. Fink, D. Grove, and M. Hind, were also authors on the Alpern paper and, while the Alpern paper sets forth original work of these co-inventor/authors, the paper was published less than one year prior to the filing of the present application.

This application is now believed to be in condition for allowance, and a Notice of Allowance is respectfully requested. If the Examiner believes a telephone conference

might expedite prosecution of this case, it is respectfully requested that the Examiner call applicant's attorney at (516) 742-4343.

Respectfully submitted,



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